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WHAT IS CLAIMED IS:

1. A process for fabricating a semiconductor device having a
2 buried layer comprising the steps of:
3 implanting an impurity ion into where the buried layer is
4 formed in a substrate;
5 providing the substrate inside a reactor furnace;
6 preparing a nonoxidizing atmosphere inside of the reactor
7 furnace;
8 annealing the substrate to activate and diffuse the implanted
9 impurity ion region while increasing inside temperature of the reactor
10 furnace up to a first temperature; and
11 shifting the inside temperature of the reactor furnace from
12 the first temperature to a second temperature in which a epitaxial
13 crystal starts to grow and introducing a epitaxial growth gas into the
14 reactor furnace to grow an epitaxial layer on a surface of the
15 substrate.

1. 2. The process for fabricating the semiconductor device as set
2 forth in claim 1, wherein the step of growing the epitaxial layer is
3 initiated before the expanded ion implanted region reaches the
4 surface of the substrate.

1. 3. The process for fabricating the semiconductor device as set
2 forth in claim 1, wherein the first temperature is lower than the
3 second temperature.

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1 4. The process for fabricating the semiconductor device as set
2 forth in claim 1 further comprising the step of:
3 preparing a cleaning gas in the reactor furnace to clean up the
4 surface of the substrate between the step of diffusing the ion
5 implanted region and the step of growing the epitaxial layer.

1 5. The process for fabricating the semiconductor device as set
2 forth in claim 4, wherein the first temperature is lower than the
3 second temperature.

1 6. The process for fabricating the semiconductor device as set
2 forth in claim 4, wherein the first temperature is higher than the
3 second temperature.

1 7. The process for fabricating the semiconductor device as set
2 forth in claim 1, wherein the surface of the substrate is covered by
3 oxide film at the step of implanting the impurity ion.

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1 8. The process for fabricating the semiconductor device as set
2 forth in claim 4, wherein the cleaning gas is consist of H_2 gas.

1 9. The process for fabricating the semiconductor device as set
2 forth in claim 4, wherein the cleaning gas includes HCl gas.